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July 6, 1992  
ND3MNO:3326

Beaver Valley Power Station, Unit No. 2  
Docket No. 50-412, License No. NPF-73  
LER 92-009-00

United States Nuclear Regulation Commission  
Document Control Desk  
Washington, DC 20555

Gentlemen:

In accordance with Appendix A, Beaver Valley Technical Specifications, the following Licensee Event Report is submitted:

LER 92-009-00, 10 CFR 50.73.a.2.iv, "Auxiliary Feedwater Pumps Auto-Start Upon Trip of Running Main Feedwater Pump".

Very truly yours,

T. P. Noonan  
General Manager  
Nuclear Operations

JGT/sl

Attachment

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 605 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) E-gaver Valley Power Station Unit 2		DOCKET NUMBER (2) 0 5 0 0 0 4 1 2 1	PAGE (3) 1 OF 0 3
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TITLE (4)  
Auxiliary Feedwater Pumps Auto-Start Upon Trip Of Running Main Feedwater Pump

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	YEAR	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
0 6	0 5	9 2	0 0 9	0 0	0 7	0 6	9 2		N/A		0 5 0 0 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)											

OPERATING MODE (9) 1	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.11(b)
POWER LEVEL (10) 0 3 8	20.405(a)(1)(i)	50.38(c)(1)		50.73(a)(2)(v)	73.11(c)
	20.405(a)(1)(ii)	50.38(c)(2)		50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(ii)		50.73(a)(2)(vii)(A)	
	20.405(a)(1)(iv)	50.73(a)(2)(iii)		50.73(a)(2)(viii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME T.P. Noonan, General Manager Nuclear Operations	TELEPHONE NUMBER AREA CODE: 4 1 2 6 4 3 - 1 2 5 8
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRRDS
X	J B R L Y		W 1 2 0	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On 6/5/92 at 2100 hours, a load reduction from 100% power to approximately 30% power was commenced. At 2207 hours, the "A" main feedwater pump, 2FWS-P21A, was secured in accordance with the station shutdown procedure. At 2228 hours, with the unit at 38% power and decreasing, the remaining main feedwater pump, 2FWS-P21B, tripped. The trip of 2FWS-P21B resulted in the automatic start of the two motor driven auxiliary feedwater pumps, 2FWE\*P23A and 2FWE\*P23B. The start of the auxiliary feedwater pumps caused automatic isolation of steam generator (SG) blowdown by the closure of 2BDG\*AOV100A,B,C, 2BDG\*AOV101A2,B2,C2, and 2SSR\*AOV117A,B,C. Control room operators started the "A" main feedwater pump five seconds after the trip of the "B" main feedwater pump, preventing a reactor trip on low-low steam generator level. The lowest SG level occurred in the "C" SG, with narrow range level of 34%. The low-low SG level reactor trip setpoint is 15.5%. The manual start of the feedwater pump restored SG level, and the operator secured the auxiliary feedwater pumps at 2230 hours. The steam generator blowdown valves were reopened at 0045 hours on 6/5/92. There were no safety implications during this event. The motor driven auxiliary feedwater pumps automatically started as designed following the trip of the running main feedwater pump to provide water to the steam generators.



LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION: REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Beaver Valley Power Station Unit 2	DOCKET NUMBER (2)  0500041292	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (if more space is required, use additional NRC Form 386A's) (17)

DESCRIPTION OF EVENT

On 6/5/92 at 2100 hours, a load reduction from 100% power to approximately 30% power was commenced to perform scheduled maintenance on the heater drain pumps. At 2207 hours, the "A" main feedwater pump, 2FWS-P21A, was secured in accordance with the station shutdown procedure. At 2228 hours, with the unit at 38% power and decreasing, the remaining main feedwater pump, 2FWS-P21B, tripped.

The trip of the last remaining main feedwater pump resulted in the automatic start of the two motor driven auxiliary feedwater pumps, 2FWE\*P23A and 2FWE\*P23B. The start of the auxiliary feedwater pumps caused automatic isolation of steam generator blowdown by the closure of 2BDG\*AOV100A, B, C, 2BDG\*AOV101A2, B2, C2, and 2SSR\*AOV117A, B, C. Control room operators started the "A" main feedwater pump 5 seconds after the trip of the only running main feedwater pump, preventing a reactor trip on low-low steam generator level. The lowest steam generator level occurred in the "C" generator, with level narrow range level of 34%. The low-low steam generator level reactor trip setpoint is 15.5%.

The manual start of the "A" main feedwater pump restored steam generator level to program level, and the operator secured the auxiliary feedwater pumps at 2230 hours. The steam generator blowdown valves were reopened at 0045 hours on 6/6/92.

CAUSE OF EVENT

During the load reduction, after the first main feedwater pump was removed from service, the recirculation valve for the "B" main feedwater pump, 2FWR-FCV150B, began to cycle. The cycling of the recirculation valve induced a low suction pressure on the "B" main feedwater pump. The main feedwater pump trip circuitry utilizes an MG-6 relay with an operate and a reset coil. Normal circuit operation is such that when pump suction pressure reduces below 292 psig, a pressure switch contact opens which deenergizes the operate coil in the MG-6 relay. The relay at this point does not provide a trip signal as the relay remains latched.

If suction pressure continues to reduce, a control room annunciator is received at 275 psig, and at 250 psig, a 30 second timer is activated. If the suction pressure remains below 250 psig for 30 seconds, the timer closes a contact and operates the reset coil in the MG-6 relay. Operation of the reset coil unlatches the relay and allows it to trip provided the operate coil is deenergized. This initiates the trip of the feedwater pump.

Investigation of the pump trip discovered a faulty latch mechanism in the MG-6 relay. When the recirculation valve opened, suction pressure reduced to less than 292 psig, which

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Beaver Valley Power Station Unit 2	DOCKET NUMBER (2)  0 5 0 0 0 4 1 2 9 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		- 0 0 9	- 0 0	0 3	OF 3	

TEXT (If more space is required, use additional NRC Form 365A's) (17)

de-energized the operate coil. Suction pressure remained above 275 psig, as no control room alarms for low pump suction pressure were received. When the operate coil de-energized, the faulty latch mechanism immediately allowed the relay trip contacts to close without operation of the reset coil, which resulted in an immediate trip of the main feedwater pump.

CORRECTIVE ACTIONS

The immediate and long term corrective actions taken as a result of this event include:

- 1). The "A" main feedwater pump was immediately started following the trip of the "B" main feedwater pump.
- 2). The auxiliary feedwater pumps were secured and steam generator blowdown was restored.
- 3). Instrumentation and control personnel tightened the actuator and mechanical maintenance repaired an internal flaw which caused valve binding on the "B" main feedwater pump recirculation valve.
- 4). The latching mechanism in the MG-6 relay was adjusted to its correct position by the Relay Department. The relay for the "A" main feedwater pump was also inspected and was found to be at the proper setting.

REPORTABILITY

The NRC was notified at 2355 hours or 6/5/92 via the Emergency Notification System in accordance with 10 CFR 50.72.b.2.ii, as an event that resulted in an automatic actuation of an Engineered Safety Feature component. The automatic start of the auxiliary feedwater pumps upon trip of all running main feedwater pumps, as well as automatic isolation of steam generator blowdown upon starting of the auxiliary feedwater pumps, is considered to be an Engineered Safety Feature actuation. This written report is being submitted in accordance with 10 CFR 50.73.a.2.iv, as an event that resulted in an automatic actuation of an Engineered Safety Feature component.

SAFETY IMPLICATIONS

The health and safety of the general public was not challenged at any time during this event. The motor driven auxiliary feedwater pumps automatically started as designed following the trip of the last running main feedwater pump to provide water to the steam generators. The operators took immediate manual actions to maintain proper steam generator levels.

PREVIOUS SIMILAR EVENTS

There are no previous similar events.